

Volume IIIb Corrective Measures Study

South Yard

Boeing Plant 2

**Response to EPA Comments: Draft Uplands Corrective Measure Study, Volume IIIb, South Yard Area Data Gap Investigation Report, Seattle/Tukwila, Washington Resource Conservation and Recovery Act (RCRA) Docket No. 1092-01-22-3008(h) EPA ID No. WAD 00925 6819
Dated December 14, 2006**

General Comments

1. Groundwater Analysis Results and corresponding attachments

Boeing referenced and provided the historical groundwater concentrations for various constituents within the text and attached maps of the draft Report, but did not include these historical concentrations when preparing the isoconcentrations. Unless a historic point was re-sampled and new value obtained, Boeing must use the historical concentrations above applicable screening levels in the isoconcentration maps for groundwater. Until the presence of a constituent which has been previously detected above a screening level is proven **not** to exist at a previous investigative location, Boeing and EPA must consider the constituent to be present at the previously detected concentration. Since Volume IIIb of each CMS Investigation is to contain both the historic and Data Gap information in a comprehensive data report the entire contaminant picture must be portrayed in this draft Report. These comprehensive maps must be constructed to depict every exceedance of a screening level in every level of the aquifer (A, B and C), as Boeing did in depicting vinyl chloride concentrations in Attachment E.

Boeing Response: Comment withdrawn by EPA: Isoconcentration maps are based on data gap investigation data only; historic concentrations are shown as the maximum concentration detected for that location and are presented for context only. EPA rescinded the comment in their February 15, 2007 comment amendment letter following discussions in the February 8, 2007 10.3 EPA/Boeing Plant 2 Upland Team meeting.

2. Maximum detected concentrations

In the groundwater and soil analysis sections, Boeing often refers to the location of the maximum detected concentration of a constituent, but does not always include the value of the concentration. Boeing must include detected concentration for each detected constituent in each section.

Boeing Response: Comment accepted, Boeing has revised the text in Sections 3 and 5 to include the concentration value when referring to the location with the maximum detected concentration of a constituent, as requested by EPA.

3. Groundwater Analysis Results and corresponding attachments

Boeing must submit all the original laboratory data reports and field notes with this draft Report, as was required with previous Boeing investigations.

Boeing Response: Comment accepted, Boeing has provided laboratory data reports including narratives, data validation summaries reports and QA/QC reports

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with Form 1s for the South Yard Data Gap Investigation samples in Attachment G on the electronic version of the report provide on a CD as agreed to with EPA at the February 8, 2007 EPA/Boeing Plant 2 Upland team meeting.. A table identifying the media type and sample designation group for each sample is provided in the hard copy (and CD) of Attachment G to assist the reader in looking for specific sample related information on the CD.

Field investigation field notes have been added to the CMS Vol. IIIb South Yard Data Gap Investigation Report and are contained in Attachment H.

4. Attachment F, Section 2 of 2.

Boeing states in the draft Report that historic soil concentrations from previous investigations were included in Attachment F, Soil Data Gaps Investigations and Historic Data Cross-Sections. It appears upon review that many of these were included in the isoconcentrations diagrams for the different constituents detected, but several of the values were left off. Some examples include, but are not limited to:

- Attachment F, Figure 3A, Benzo(A)anthracene, Isoconcentration lines associated with boring SB-08335 are missing,
- Attachment F, Figure 1B, Benzo(A)pyrene, Isoconcentration lines associated with borings DP-SY-08 and DP-SY-06 are missing,
- Attachment F, Figure 2A, Benzo(A)pyrene, Isoconcentration lines associated with boring SB-08302 are missing,
- Attachment F, Figure 3A, Benzo(A)pyrene, Isoconcentration lines associated with boring SB-08335 are missing,
- Attachment F, Figure 2B, Benzo(A)pyrene, Isoconcentration lines associated with boring PL2-603A, PL2-603A, 288-19, and PL2-602A are missing.

All historical values in excess of screening levels must be included in the isoconcentration diagrams.

Boeing Response: Comment withdrawn by EPA: Isoconcentration lines were contoured to each constituent's respective 2004 screening level or 2006 background level. The examples listed would be applicable to 1999 proposed media cleanup levels (PMCLs). EPA rescinded the comment in their February 15, 2007 comment amendment letter following discussions in the February 8, 2007 10.3 EPA/Boeing Plant 2 Upland Team meeting.

5. Attachment E and Attachment F

Part A - The scale for the maps depicting groundwater isoconcentrations in Attachment E is 1:100, while the scale for the maps depicting soil isoconcentrations in Attachment F is 1:70. As discussed with Boeing, these scales will need to be reconciled in Volume IIIc, the Corrective Measures Alternatives. Furthermore, all future map depictions of soil and groundwater data in the same volume of a document (work plan, report, etc.) must be in the same scale.

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Boeing Response: Comment accepted in practice, scales for groundwater isoconcentration figures in Attachment E and soil isoconcentrations figures in Attachment F will be reconciled in Vol IIIc in the CMS at 1 inch to 120 feet. The scale for all other Plant 2 Areas will be consistent between groundwater and soil figures. The scale for each area was proposed as identified in the following table and accepted by EPA and documented by Boeing's February 23, 2007 letter to EPA.

Area	Scale	Reconciled in Vol.
South Yard	1 - 120	Vol. c
2-60s	1 – 120	Vol. b & c
2-66s	1 - 60	Vol. b & c
2-40s	1 – 120	Vol. b & c
2-31	1 – 120	Vol. a, b & c
2-10	1 – 150	Vol. a, b & c
North Area	1 - 120	Vol. a, b & c

Part B - For the isoconcentration lines, Boeing used the 2004 soil screening levels. As Boeing is aware, many of the screening levels are significantly higher than the proposed media cleanup levels (PMCLs). Since this draft Report is to be the basis of the Corrective Measures Alternatives, Boeing must use the most conservative of the numbers to delineate isoconcentration lines. Boeing must revise all maps to utilize the more conservative of the PMCLs or 2004 soil screening levels.

Boeing Response: Comment withdrawn by EPA: Isoconcentration lines were contoured to each constituent's respective 2004 screening level. The examples listed would only be applicable to 1999 PMCLs. EPA withdrew the comment in their February 15, 2007 comment amendment letter following discussions in the February 8, 2007 10.3 EPA/Boeing Plant 2 Upland Team meeting.

Specific Comments

1. Foreword, Report Forward Page, first paragraph

Rewrite the last sentence to read "Boeing, with the concurrence of the United States Environmental Protection Agency (EPA) has embarked on a series of focused investigations to enable the Uplands CMS to proceed".

Boeing Response: Comment accepted, Boeing has revised the text as requested by EPA..

2. Section 3.1, Inorganics, page 3-1, third paragraph.

Boeing provides several reasons why total metal concentrations were not included on the groundwater isoconcentration maps. EPA agrees that analytical data for inorganics may be skewed based on turbidity, but the values must be annotated on all of the isoconcentration maps. Boeing does not have to include these values for determining

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isoconcentration lines on these maps (similar to how Boeing presented the historical concentrations) but the data must be on the maps.

Boeing Response: Comment accepted, Boeing has revised the figure to include the total metals data as requested by EPA. Total metals data were not considered in contouring.

3. Section 3.2.2, bis(2-ethylhexyl)phthalate, page 3-10, first paragraph

Boeing states that seven historic groundwater samples for bis(2-ethylhexyl)phthalate were detected in the south yard and that the values of detections are presented in Attachment E. During the review of the Attachment, only two concentrations were identified on the map (PL2-104C and PL2-102A) and one additional location where the detection level exceeded the screening level (GP-08902). Boeing must include the remaining historic concentrations on the map. If these concentrations were superseded by Data Gap Investigation results, Boeing must state this in the discussion.

Boeing Response: Comment accepted, Boeing has revised the text as requested by EPA. to indicate that "All historical detections above the screening level may not be depicted on the COC map in Attachment E because for locations with multiple results only the maximum detected concentration is shown".

4. Section 3.3.3, cis-1,2-dichloroethene, page 3-14, first paragraph

Boeing states that three historic groundwater samples for cis-1,2-dichloroethene were detected in the south yard and that the values of these detections are presented on Attachment E. During the review of the attachment, none of the concentrations were identified on the map. Boeing must include these historic concentrations on the map. If these concentrations were superseded by Data Gap Investigation results, Boeing must state this in the discussion.

Boeing Response: Comment accepted, Boeing has revised the text as requested by EPA. to indicate that "All historical detections above the screening level may not be depicted on the COC map in Attachment E because for locations with multiple results only the maximum detected concentration is shown".

5. Section 3.3.4, tetrachloroethene, page 3-14, first paragraph

Boeing states that twelve historic groundwater samples for tetrachloroethene were detected in the south yard and that the values of these detections are presented on Attachment E. During the review of the attachment, only five concentrations were identified on the map (PL2-102A, PL2-105A, PL2-109A, GP-08905, and GP-06637 Boeing must include the four remaining historic concentrations on the map. If these concentrations were superseded by Data Gap Investigation results, Boeing must state this in the discussion.

Boeing Response: Comment accepted, Boeing has revised the text as requested by EPA. to indicate that "All historical detections above the screening level may not be depicted on the COC map in Attachment E because for locations with multiple results only the maximum detected concentration is shown".

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6. Section 3.3.7, vinyl chloride, page 3-17, first paragraph

Boeing states that vinyl chloride was detected in eighty-four historic groundwater samples in the south yard and that the values of these detections are presented on Attachment E. During the review of the Attachment, only thirty-one of the concentrations were identified on the map. Boeing must include the fifty-four remaining historic concentrations on the map. If these concentrations were superseded by Data Gap Investigation results, Boeing must stat this in the discussion.

Boeing Response: Comment accepted, Boeing has revised the text as requested by EPA. to indicate that "All historical detections above the screening level may not be depicted on the COC map in Attachment E because for locations with multiple results only the maximum detected concentration is shown".

7. Section 4.0, Groundwater Hydrogeologic Results, page 4-1, last paragraph

Rewrite the first sentence to read "Groundwater flow directions within the 2-66 Area are affected by the presence of the sheet pile structure and are likely complex due to the effect of this structure as well as tidal fluctuations." Data presented by Boeing regarding this sheet pile structure indicate groundwater elevation fluctuations within the sheet pile as a result of tidal influence, and therefore the sheet pile wall is not an impermeable barrier to groundwater flow.

Boeing Response: Initial comment disputed in the February 8, 2007 EPA/Boeing Plant 2 Upland Team meeting. Boeing has revised the text as requested by EPA in their February 15, 2007 comment amendment letter. The sentence has been revised to read "Horizontal groundwater flow directions within the 2-66 Area are affected by the presence of the sheet pile structure which acts as an impermeable barrier to horizontal groundwater flow and are likely complex due to the effect of this structure as well as tidal effects".

8. Table 3-1

Boeing must include reporting limits (RL's) on this table to verify that RL's were below screening levels (SL's).

Boeing Response: Comment accepted, Boeing has revised Table 3-1 to include RLs as requested and tables 3-2, 5-1 and 5-2 for consistency.

9. Attachment A, Borehole SY-PL2-601A Boring Log

Change "Allunum" to "Alluvium".

Boeing Response: Comment accepted, Boeing has changed the boring log as requested by EPA.

10. Attachment A, Borehole SY-PL2-601 B Boring Log

The groundwater elevation symbol is missing from this log.

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Boeing Response: Comment accepted, Boeing has added the groundwater elevation symbol to the boring log as requested by EPA.

Attachment F

As stated in the general comment, isoconcentration lines are missing for a multitude of constituent maps in this Attachment. Review all the maps in this attachment and provide all isoconcentrations lines.

Boeing Response: Comment withdrawn by EPA: EPA rescinded the comment in their February 15, 2007 comment amendment letter following discussions in the February 8, 2007 10.3 EPA/Boeing Plant 2 Upland Team meeting. Only 2004 screening levels will be used, 1999 PMCLs are not applicable.